

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number  
**WO 2005/015213 A1**

(51) International Patent Classification<sup>7</sup>: **G01N 33/533, C12Q 1/00, A61K 51/12**

(21) International Application Number: **PCT/CN2003/000666**

(22) International Filing Date: **13 August 2003 (13.08.2003)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data: **031153215.2 8 August 2003 (08.08.2003) CN**

(71) Applicants (*for all designated States except US*): **TSINGHUA UNIVERSITY [CN/CN]; Tsinghua University, HaiDian District, Beijing 100084 (CN). CAPITAL BIOCHIP COMPANY LTD. [CN/CN]; Jia N02, Qinghua West Road, HaiDian District, Beijing 100084 (CN).**

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **LU, Huachang [CN/CN]; Tsinghua University, HaiDian District, Beijing 100084 (CN). YI, Guangshun [CN/CN]; Tsinghua University, HaiDian District, Beijing 100084 (CN). CHEN, Depu [CN/CN]; Tsinghua University, HaiDian District, Beijing 100084 (CN). GUO, Lianghong [CN/CN]; Tsinghua University, HaiDian District, Beijing 100084 (CN).**

(74) Agents: **JEEKAI & PARTNERS et al.; Suite 602, Jinyu Tower, A129 West Xuan Wu Men Street, XiCheng District, Beijing 100031 (CN).**

(81) Designated States (*national*): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**

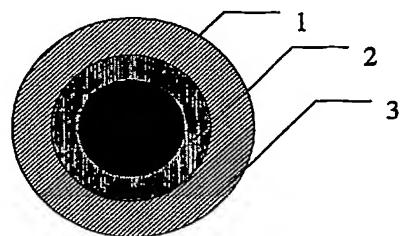
(84) Designated States (*regional*): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

Published:

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **FLUORESCENT MAGNETIC NANOPARTICLES AND PROCESS OF PREPARATION**



WO 2005/015213 A1

(57) Abstract: This invention provides nanometer-sized fluorescent magnetic particles and processes of making them. The nanoparticle has a core particle comprising a magnetic material and a fluorescent material, and the particle size is less than about 1 micrometer. The nanoparticles can be coated with an inorganic or organic layer and can be surface-modified. The nanoparticles can be used in many biological assays.